OXYGEN & AEROSOL THERAPY

Fixed and Variable Concentration, Post Operative and Aerosol Therapy

Flexicare's Oxygen and Aerosol Therapy products include Variable Concentration Oxygen Masks, Fixed Concentration Oxygen Masks, Post Operative Oxygen Therapy, Nebulisers and Nebuliser Kits

Oxygen and Aerosol Therapy

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Principles of Oxygen Therapy

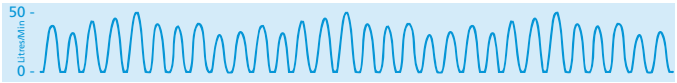
Oxygen is the most important single substance in animal biology. It constitutes nearly 50% of the mass of our planet, 21% of the air we breathe, 50% of rock and 89% of water. Yet it took man a surprisingly long time to discover the significance of oxygen in terms of combustion, respiration and animal metabolism. Oxygen is essential for normal respiration in aerobic organisms. Upon entering the lungs, O_2 molecules dissolve in the lipid and aqueous phase of tissues and diffuses across alveolar membranes and into alveolar capillaries. The vast majority of oxygen is bound to haemoglobin and only a small fraction, less than 2% is dissolved in the plasma. Following the transport to various tissues, oxygen diffuses into the cells for metabolism.

Oxygen Administration Methods

Oxygen therapy devices for the spontaneously breathing patient fall into two categories, Variable Performance and Fixed Performance.

1. Variable Performance

These devices administer uncontrolled oxygen therapy, because the patient creates the inspired mixture by the act of breathing. Examples of these are nasal catheters, nasal cannulae and mask shells with or without a rebreathing bag (see pictures below). Various factors cause unpredictability in knowledge and control of inspired oxygen concentration when using these devices. Firstly, because the oxygen flow is less than the patient's inspiratory flow, the patient obtains some oxygen and some air, but in unknown proportion because normal breathing has an irregular pattern:



The resulting oxygen concentration varies not only on a breath by breath basis, but also from patient to patient. Secondly, the size of the mask, size and placement of the vents and fit of the mask to the face will cause variation in inspired oxygen concentrations.

Variable Performance Devices:

Low Capacity Mask Shell

Nasal Cannula

High Capacity Systems

Nasal Catheter

The disadvantage of using a variable performance device is that blood gas values cannot be easily interpreted since they only reflect performance variation of the mask/patient interface rather than a true change in the condition of the lungs under treatment.

2. Fixed Performance

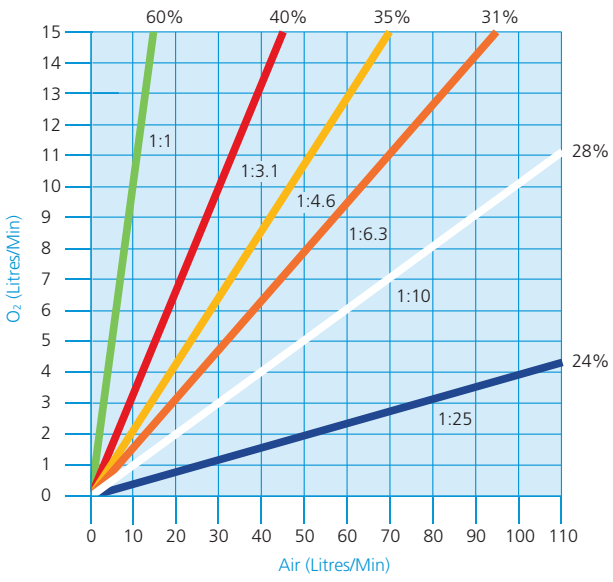
These devices allow controlled (known, fixed and selectable) oxygen dosage. They create a constant proportion of air/oxygen mixture in excess of patient inspiratory flow rate and are independent of patient factors or fit to the face. With gas flow constantly in excess of patient demand and with enhanced CO_2 washout, rebreathing is virtually eliminated.

Fixed Performance Devices:

To work efficiently and to prevent air dilution a fixed performance device should incorporate:
a) A large volume face piece (not less than 280ml)
b) Gas mixture flowing directly towards the nose and mouth
c) Vents positioned well away from the patient airway.
Fixed performance devices are sometimes referred to as venturi or air entrainment masks.

Calculating total gas mixture flow rates

Using the mixture graph below, the total gas flow rate available to the patient can be assessed.

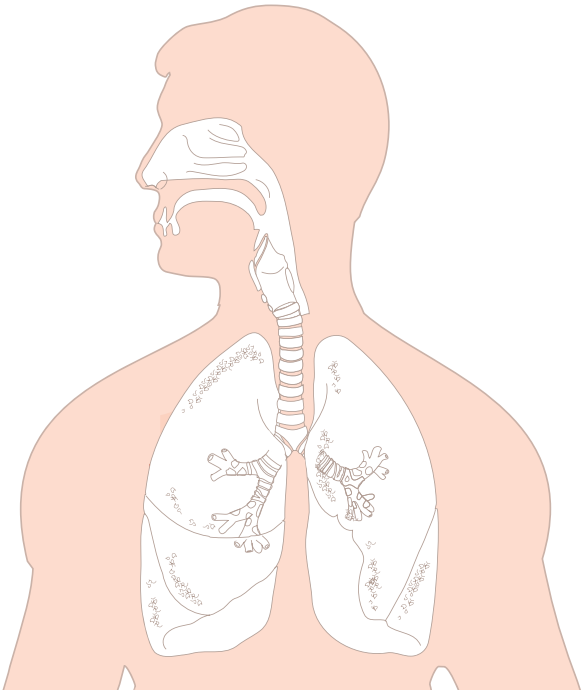


Principles of Aerosol Therapy

Medication Nebulisers - also referred to as small volume or jet nebulisers (SVN) are devices used to turn medication into an aerosolized mist to deliver directly into the patient's lungs. Inhaled aerosols have considerable advantages in the treatment of many lung diseases including bronchitis and cystic fibrosis. The required dose is much smaller compared to that taken systemically and the side effects are therefore negligible. The onset of the action is quicker, and the drug itself is more selective.

Nebuliser Performance - Important characteristics of nebuliser performance include the aerosol particle size generated, drug output, nebulising time and the amount of drug delivered to the patient. Device construction, fill volume, flow temperature, humidity of the driving gas are factors affecting the performance of a nebuliser.

Particle Size is an important characteristic of nebuliser performance. Large particles do not reach the lower respiratory tract depositing themselves in the mouth, upper airways and gastrict tract. Particles too small will not be taken up by the alveoli and are exhaled. Respirable particles taking part in lung deposition has been accepted to range from 0.5 microns to 5.0 microns in diameter size.



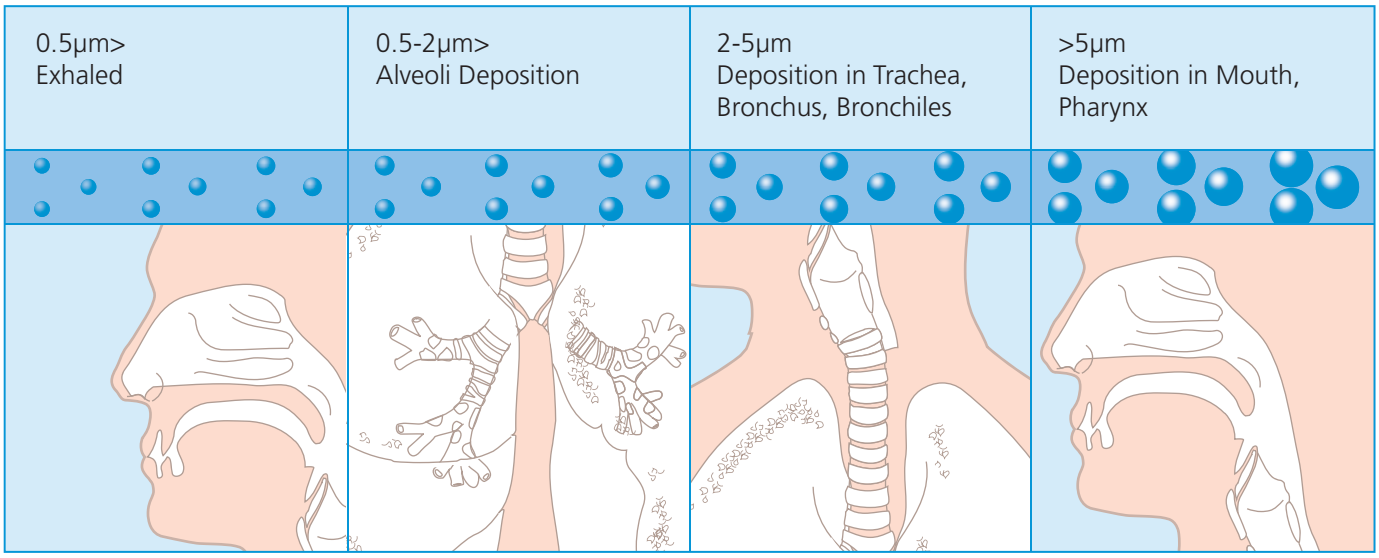
Dead Volume is the volume of medication not delivered to the patient during nebulisation and exists as the volume left in the nebuliser at the end of nebulisation.

Respirable Mass is the combination of aerosolized drug output and the percentage of particles in the respirable range. This is the amount of aerosolized drug available to the patient on inspiration.

Reconcentration in a SVN is greater at a diluent volume of 2ml than one of 4ml and for that reason it is suggested 4ml maybe superior than 2ml as a diluent formula.

Nebulising Time is the time from starting nebulisation until continuous nebulisation has ceased and depends on the flow rate, compressed air and the construction of the nebuliser. These are a major influence on aerosol size distribution. Optimal flow rates recommended are between 6-8 litres per minute, with 8 l/min providing a smaller particle size and shorter nebuliser time, the time it takes for the volume to completely nebulise. A SVN should deliver at least 80% of the solution within 15 minutes.

Aerosol Particle Deposition



Fixed Concentration

Ventimask

Clinically Proven... "only Ventimask is able to provide a fixed and predictable oxygen concentration with changing and variable breathing patterns." Ventimask is the accepted standard for controlled oxygen therapy for exact oxygen concentration delivery, optimum clinical performance with greater patient acceptability.

Ventimask®

Large Capacity
Air dilution is minimised due to large capacity 280ml face piece.

Soft and Flexible
The construction of the facemask ensures maximum comfort during sleep.

Latex Free Straps
Latex free elastic straps eliminate the risk of allergic reactions.

Horizontal Gas Flow
Eye irritation is avoided due to Horizontal Gas Flow.

Exhalation Vents
Extraneous air dilution is greatly reduced by Exhalation Vents, enhancing CO_2 washout and preventing pressure build up.

Ventimask without Venturi Barrel

037-10-007	Ventimask no Venturi	50

Ventimask with Venturi Barrel

037-10-001	Ventimask with 24% Blue Venturi (2 lites/minute)		50
037-10-002	Ventimask with 28% White Venturi (4 litres/minute)		50
037-10-010	Ventimask with 31% Orange Venturi (6 litres/minute)		50
037-10-003	Ventimask with 35% Yellow Venturi (8 litres/minute)		50
037-10-004	Ventimask with 40% Red Venturi (10 litres/minute)		50
037-10-005	Ventimask with 60% Green Venturi (15 litres/minute)		50
037-10-006	Ventimask with 28% White Venturi in situ (2 litres/minute - for use at home)		40

Ventimask O_2 Concentration Sets

Low O_2 Set

High O_2 Set

037-10-008	Ventimask Low O_2 Concentration Set with 24%, 28%, 31% & 35% Venturies	50
037-10-009	Ventimask High O_2 Concentration Set with 40% & 60% Venturies	50

Ventimask with 6 Venturies

037-10-012	Ventimask with 6 Venturies 24%, 28%, 31%, 35%, 40% & 60%	40

Fixed Concentration

Single Venturi Masks

These masks, sometimes called High Air Flow Oxygen Enrichment (HAFOE) masks incorporate a Venturi Barrel and use the Bernoulli principle to deliver a predetermined and fixed concentration of oxygen. This is provided to the patient regardless of their respiratory pattern, y providing a higher gas flow than the peak inspiratory flow rate.

Adult Venturi Masks

032-10-040	Adult Venturi Mask 24%		50
032-10-041	Adult Venturi Mask 28%		50
032-10-048	Adult Venturi Mask 31%		50
032-10-042	Adult Venturi Mask 35%		50
032-10-043	Adult Venturi Mask 40%		50
032-10-044	Adult Venturi Mask 60%		50

Adult Venturi Masks with Tubing

032-10-040T	Adult Venturi Mask 24% with Tubing		50
032-10-041T	Adult Venturi Mask 28% with Tubing		50
032-10-048T	Adult Venturi Mask 31% with Tubing		50
032-10-042T	Adult Venturi Mask 35% with Tubing		50
032-10-043T	Adult Venturi Mask 40% with Tubing		50
032-10-044T	Adult Venturi Mask 60% with Tubing		50

Paediatric Venturi Masks

032-10-050	Paediatric Venturi Mask 24%		50
032-10-051	Paediatric Venturi Mask 28%		50
032-10-058	Paediatric Venturi Mask 31%		50
032-10-052	Paediatric Venturi Mask 35%		50
032-10-053	Paediatric Venturi Mask 40%		50
032-10-054	Paediatric Venturi Mask 60%		50

Paediatric Venturi Masks with Tubing

032-10-050T	Paediatric Venturi Mask 24% with Tubing		50
032-10-051T	Paediatric Venturi Mask 28% with Tubing		50
032-10-058T	Paediatric Venturi Mask 31% with Tubing		50
032-10-052T	Paediatric Venturi Mask 35% with Tubing		50
032-10-053T	Paediatric Venturi Mask 40% with Tubing		50
032-10-054T	Paediatric Venturi Mask 60% with Tubing		50

Fixed Concentration

Aerosol Masks, Multi Venturi Masks & Venturi Barrels

When the required concentration needs to change during oxygen therapy, the adult aerosol mask, with the choice of 6 venturies or a multi venturi mask kit will offer the choice to suit the individual patients requirements. The aerosol mask can be used with a nebuliser or 22mm corrugated tubing for combined oxygen therapy and humidification.

Integrated Plastic Nose Bridge
Latex Free Knitted Strap with secure ends
22mm Male Swivel Connector
Stepped Mask Construction
Soft Feathered Edges

Available with Nose Clip

Adult Aerosol Masks and Venturies

032-10-006	Adult Aerosol Mask	50
032-10-006SM	Small Adult Aerosol Mask	50
032-10-006NC	Adult Aerosol Mask with Nose Clip	50
032-10-026	Adult Mask with 2 Venturies 40% & 60%	50
032-10-027	Adult Mask with 2 Venturies 40% & 60% with Tubing	50
032-10-024	Adult Mask with 4 Venturies 24%, 28%, 35% & 40%	50
032-10-025	Adult Mask with 4 Venturies 24%, 28%, 35% & 40% with Tubing	50
032-10-028	Adult Mask with 6 Venturies 24%, 28%, 31%, 35%, 40% & 60%	50
032-10-028T	Adult Mask with 6 Venturies 24%, 28%, 31%, 35%, 40% & 60% with Tubing	50
032-10-028NC	Adult Mask with 6 Venturies 24%, 28%, 31%, 35%, 40% & 60% with Nose Clip	50

Paediatric Aerosol Mask and Venturies

032-10-010	Paediatric Aerosol Mask	50
032-10-055T	Paediatric Mask with 6 Venturies - 24, 28, 31, 35, 40 & 60% with Tubing	50

Venturi Barrels

034-10-026	Venturi Barrel 24% Blue		50
034-10-027	Venturi Barrel 28% White		50
034-10-032	Venturi Barrel 31% Orange		50
034-10-028	Venturi Barrel 35% Yellow		50
034-10-029	Venturi Barrel 40% Red		50
034-10-030	Venturi Barrel 60% Green		50
034-10-031	Blank Venturi (Oxygen Connector)		40

Fixed Concentration

Venturi Barrels with Reservoir Tube

034-10-026C	Venturi Barrel 24% Blue with Reservoir Tube		50
034-10-027C	Venturi Barrel 28% White with Reservoir Tube		50
034-10-032C	Venturi Barrel 31% Orange with Reservoir Tube		50
034-10-028C	Venturi Barrel 35% Yellow with Reservoir Tube		50
034-10-029C	Venturi Barrel 40% Red with Reservoir Tube		50
034-10-030C	Venturi Barrel 60% Green with Reservoir Tube		50

Adult Venturi Masks with Reservoir Tubing

032-10-040C	Adult Venturi Mask 24% Blue with Reservoir Tube		50
032-10-041C	Adult Venturi Mask 28% White with Reservoir Tube		50
032-10-048C	Adult Venturi Mask 31% Orange with Reservoir Tube		50
032-10-042C	Adult Venturi Mask 35% Yellow with Reservoir Tube		50
032-10-043C	Adult Venturi Mask 40% Red with Reservoir Tube		50
032-10-044C	Adult Venturi Mask 60% Green with Reservoir Tube		50

Adult Venturi Masks, Reservoir and Oxygen Tubing

032-10-040CT	Adult Venturi Mask 24% Blue with Reservoir Tube and Oxygen Tubing		50
032-10-041CT	Adult Venturi Mask 28% White with Reservoir Tube and Oxygen Tubing		50
032-10-048CT	Adult Venturi Mask 31% Orange with Reservoir Tube and Oxygen Tubing		50
032-10-042CT	Adult Venturi Mask 35% Yellow with Reservoir Tube and Oxygen Tubing		50
032-10-043CT	Adult Venturi Mask 40% Red with Reservoir Tube and Oxygen Tubing		50
032-10-044CT	Adult Venturi Mask 60% Green with Reservoir Tube and Oxygen Tubing		50

Paediatric Venturi Masks with Reservoir Tubing

032-10-050C	Paediatric Venturi Mask 24% Blue with Reservoir Tube		50
032-10-051C	Paediatric Venturi Mask 28% White with Reservoir Tube		50
032-10-058C	Paediatric Venturi Mask 31% Orange with Reservoir Tube		50
032-10-052C	Paediatric Venturi Mask 35% Yellow with Reservoir Tube		50
032-10-053C	Paediatric Venturi Mask 40% Red with Reservoir Tube		50
032-10-054C	Paediatric Venturi Mask 60% Green with Reservoir Tube		50

Paediatric Venturi Masks, Reservoir and Oxygen Tubing

032-10-050CT	Paediatric Venturi Mask 24% Blue with Reservoir Tube and Oxygen Tubing		50
032-10-051CT	Paediatric Venturi Mask 28% White with Reservoir Tube and Oxygen Tubing		50
032-10-058CT	Paediatric Venturi Mask 31% Orange with Reservoir Tube and Oxygen Tubing		50
032-10-052CT	Paediatric Venturi Mask 35% Yellow with Reservoir Tube and Oxygen Tubing		50
032-10-053CT	Paediatric Venturi Mask 40% Red with Reservoir Tube and Oxygen Tubing		50
032-10-054CT	Paediatric Venturi Mask 60% Green with Reservoir Tube and Oxygen Tubing		50

Variable Concentration

Medium Concentration Masks

The Venticaire Medium Concentration Mask is a small capacity variable performance mask. At a flow rate of 6-8 litres/minute the Venticaire MC Mask delivers an oxygen concentration of 40% to 50% depending on the patients breathing rate and tidal volume.

Easy Fit with Good Seal

The soft, pliable mask moulds easily to the patient's face. The feather rim provides maximum comfort to the patient.

Clear Observation of Face Colour and Vital Signs

The mask is made of colourless and transparent soft PVC to allow visual inspection.

Reduces Patients Eye Irritation

The angled O_2 Inlet directs oxygen into the nostrils, not upwards towards the eyes.

Nose Clip

Adult MC masks are also available with a nose clip. The products can be identified by an NC suffix.

Patient Comfort

The adult mask is offered with head strap or earloops. This will allow easy fitting of the mask to patients whose head movements need to be restricted.

Eliminate Risk of Patient Injury

The design of the plastic nose bridge eliminates the need for a metal nose bridge, thus eliminating the risk of injury to patients especially children.

Stepped Oxygen Inlet

Ensures easy and safe connections to oxygen tubing.

Swivel Connector

The swivel connector provides maximum patient comfort by allowing it to be rotated to the required position.

All masks are supplied with knitted latex free straps. The knitted strap maintains its width when stretched and this will reduce the pressure on patients skin and can protect patients from pressure sores.

Adult MC Mask with Head Strap

032-10-001	Adult MC Mask with Head Strap	50
032-10-001SM	Small Adult MC Mask with Head Strap	50
032-10-002	Adult MC Mask with Head Strap and Tubing	50
032-10-002NC	Adult MC Mask with Head Strap, Tubing and Nose Clip	50

Adult MC Mask with Earloops

032-10-013	Adult MC Mask with Earloops	50
032-10-014	Adult MC Mask with Earloops and Tubing	50
032-10-014NC	Adult MC Mask with Earloops, Tubing and Nose Clip	50

Paediatric MC Mask with Head Strap

032-10-008	Paediatric MC Mask with Head Strap	50
032-10-009	Paediatric MC Mask with Head Strap and Tubing	50

Variable Concentration

Nasal Cannula & Nasal Catheter

Nasal Cannulae are used for their simplicity and patient convenience. There is entrainment of ambient air through the nostrils. The FiO2 achieved is proportional to a) the flow rate of oxygen (1-6 l/mni), b) the patients tidal volume, inspiratory flow rate, and c) the volume of the nasal pharynx.

At an oxygen flow rate of 2 l/min the oxygen concentration in the hypopharynx of a resting person is 25% - 30%. Nasal Cannula prevents Rebreathing and are comfortable for long periods.

There is increased patient compliance with nasal cannula as patients are able to speak, eat or drink. Local irritation and dermatitis may occur with high flow rates. Use of humidified oxygen is recommended to reduce dryness of the mucosal wall in the nasal cavities, particularly when using flows of greater than 4 l/min.

Adult Nasal Cannulas

032-10-020	Adult Nasal Cannula	100
032-10-020FC	Adult Flared Curved Nasal Cannula	100
032-10-022	Adult Nasal Cannula with 2.1m Tubing	100
032-10-022FC	Adult Flared Nasal Cannula with 2.1m Tubing	100
032-10-107	Adult Flared Tip Nasal Cannula	100

Soft Tip Curved Nasal Cannulas

032-10-101	Adult Soft Tip Curved Nasal Cannula with Tubing	100
032-10-102	Adult Soft Tip Curved Nasal Cannula	100
032-10-103	Paediatric Soft Tip Curved Nasal Cannula with Tubing	100
032-10-104	Paediatric Soft Tip Curved Nasal Cannula	100
032-10-105	Neonatal Soft Tip Curved Nasal Cannula with Tubing	100

Nasal Cannulas with CO_2 Monitoring

032-10-108	Adult Nasal Cannula with CO_2 Monitoring	25
032-10-109	Adult Nasal Cannula with O_2/CO_2 Combi Monitoring	25

Soft Tip Nasal Cannulas

032-10-114	Adult High Flow Soft Tip Nasal Cannula with Tubing	100
032-10-115	Infant Soft Tip Nasal Cannula with Tubing	100
032-10-116	Premature Soft Tip Nasal Cannula with Tubing	100

Dual Nasal Cannula - $EtCO_2$ Monitoring

Capnography and CO_2 Monitoring

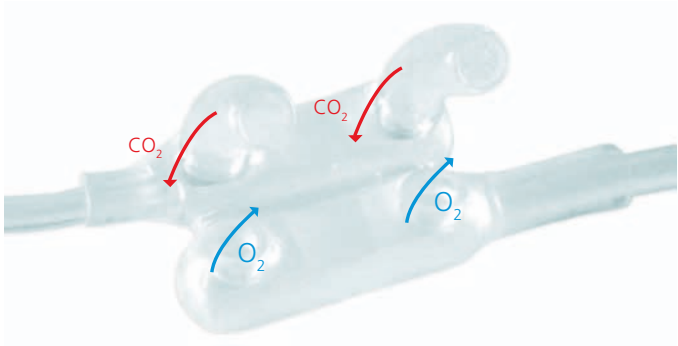
Monitoring patient's breathing in emergency and critical situations is of paramount importance. Delivering oxygen ensures the level of oxygen saturation in the blood is maintained and this sometimes is monitored and measured by a pulse oximeter.
However, the pulse oximeter does not provide breath by breath patient ventilator status. Capnography is the vital sign of ventilation. By tracking the patient's expired CO_2 clinicians can evaluate the ventilation condition of the patient during critical emergency situations, and make the judgment to assess and treat the patient.

Capnography provides the following vital information:

- Hypo ventilation
- Hyperventilation
- Confirming, maintaining and assisting intubation
- Return of spontaneous circulation (ROSC)
- Measuring cardiac output during cardiopulmonary resuscitation (CPR
- End tidal CO_2 as predictor of resuscitation outcome
- Monitoring sedated patients
- Ventilating head injury patients
- Perfusion warning sign
- $EtCO_2$ in asthma, chronic obstructive pulmonary diseases (COPD), and congestive heart failure (CHF)

End Tidal CO_2 Monitoring & O_2 Delivery Cannula

The Dual nasal cannula is designed to provide oxygen to both nostrils and also sample CO_2 at the same time. The CO_2 sampling is taken from both nostrils and there is no risk of mixing with fresh oxygen as the patient's expiratory flow will divert fresh gas away from the sampling prongs.



CO_2 CO_2 is sampled from both nostrils for side stream CO_2 monitoring through the upper prongs.

O_2 Fresh oxygen is delivered to both nostrils via the lower prongs of the dual nasal cannula.

Advantages:

- Excellent sampling accuracy as there are two end tidal CO_2 sampling ports
- Superior waveforms as Dual has two end tidal CO_2 sampling ports
- Reliable sampling under the following conditions:
  - Clogged Sinus' in one nostril
  - Deviated septum
  - Polyps
- Oxygen delivered in both nostrils at lower rate, thus minimizing mucosal wall damage
- Secure luer lock connection for both Male & Female connections
- Soft tip cannula provides superior patient comfort and nare positioning
- Non-kinking tube ensures consistent and accurate delivery
- Universal Oxygen connector is standard on all items

032-10-123	Dual Nasal Cannula, with CO_2 Monitoring and Male Pigtail Luer (2.1m)	50
032-10-124	Dual Nasal Cannula, with CO_2 Monitoring and Female Pigtail Luer (2.1m)	50
032-10-125	Dual Nasal Cannula, with CO_2 Monitoring and Male Luer (2.1m)	50
032-10-126	Dual Nasal Cannula, with CO_2 Monitoring and Female Luer (2.1m)	50
032-10-127	Dual Nasal Cannula, with CO_2 Monitoring and Male Luer (3m)	50
032-10-128	Dual Nasal Cannula, with CO_2 Monitoring and Female Luer (3m)	50
032-12-125	Dual Nasal Cannula Paediatric, with CO_2 Monitoring and Male Luer (2.1m)	50
032-12-126	Dual Nasal Cannula Paediatric, with CO_2 Monitoring and Female Luer (2.1m)	50
032-13-125	Dual Nasal Cannula Neonate, with CO_2 Monitoring and Male Luer (2.1m)	50
032-13-126	Dual Nasal Cannula Neonate, with CO_2 Monitoring and Female Luer (2.1m)	50

Dual Mask - $EtCO_2$ Monitoring

Capnography Mask

The Dual Oxygen Mask provides continual monitoring of carbon dioxide being exhaled from the mouth and nose whilst administering oxygen to the patient. The integrated oxygen and sampling line provides quick and simple operation.

Easy Fit with Good Seal

The soft, pliable mask moulds easily to the patient's face, whilst the feather rim provides maximum comfort to the patient.

Star Lumen Tubing, Secured Oxygen Delivery

Star Lumen Tubing, supplied with international standard conforming connectors, ensures that the flow of oxygen is maintained even if the tube is kinked.

Clear Observation of Face Colour

The mask is made of transparent soft PVC to allow visual inspection.

Nose Clip

Adult Dual masks are also available with a nose clip.

Independently Tested

The Dual Mask from Flexicare has been proven to be the most efficient in sampling end tidal CO_2.
An independent study[1] measured end tidal CO_2 in a simulated patient with $EtCO_2$ measured at the trachea and by the sampling mask.

032-10-130	Adult Dual Mask with CO_2 Monitoring - Female Connector	50
032-10-131	Adult Dual Mask with CO_2 Monitoring - Male Connector	50
032-10-132	Adult Dual Mask with CO_2 Monitoring and Filter - Female Connector	50
032-10-133	Adult Dual Mask with CO_2 Monitoring and Filter - Male Connector	50
032-10-134	Adult Dual Mask with CO_2 Monitoring and Nose Clip - Female Connector	50
032-10-135	Adult Dual Mask with CO_2 Monitoring and Nose Clip - Male Connector	50
032-10-136	Adult Dual Mask with CO_2 Monitoring, Nose Clip and Filter - Female Connector	50
032-10-137	Adult Dual Mask with CO_2 Monitoring, Nose Clip and Filter - Male Connector	50
032-10-138	Medium Adult Dual Mask with CO_2 Monitoring - Female Connector	50
032-10-139	Medium Adult Dual Mask with CO_2 Monitoring - Male Connector	50
032-10-140	Medium Adult Dual Mask with CO_2 Monitoring and Filter - Female Connector	50
032-10-141	Medium Adult Dual Mask with CO_2 Monitoring and Filter - Male Connector	50
032-10-142	Paediatric Dual Mask with CO_2 Monitoring - Female Connector	50
032-10-143	Paediatric Dual Mask with CO_2 Monitoring - Male Connector	50
032-10-144	Paediatric Dual Mask with CO_2 Monitoring and Filter - Female Connector	50
032-10-145	Paediatric Dual Mask with CO_2 Monitoring and Filter - Male Connector	50

[1] University Hospital of Wales, Heath Park, Cardiff. CF14 4XW

Non Rebreathing Masks

Non Rebreathing Mask

The Non Rebreathing Mask provides a high concentration of oxygen, whilst the reservoir bag allows for adequate oxygen to be available in order to meet unpredictable patients breathing patterns and tidal volumes.

Reduced Risk of Patient Trauma

The elasticated earloop bands on the adult mask eliminate the need for the patients head to be moved to apply the mask, reducing the risk of further injury to the traumatized patient.

Latex Free

Eliminates the risk of allergic reaction.

Ease and Speed of Fitting the Mask

The swivel connector allows the mask to be fitted swiftly with the connector being rotated to suit the patient's position.

Reduced Risk of Bag Occlusion

The castelation on the swivel connector ensures the flow of oxygen from the bag to the patient is uninterrupted.

Star Lumen Tubing, Secured Oxygen Delivery

Star Lumen Tubing, supplied with international standard conforming connectors, ensures that the flow of oxygen is maintained even if the tube is kinked.

Adult Non Rebreathing Mask with Earloops

032-10-070	Adult Non Rebreathing Mask with Earloops and Tubing	50
032-10-071	Adult Non Rebreathing Mask with Earloops	50

Adult Non Rebreathing Mask with Head Strap

032-10-072	Adult Non Rebreathing Mask with Head Strap and Tubing	50
032-10-072NC	Adult Non Rebreathing Mask with Head Strap, Tubing and Nose Clip	50
032-10-073	Adult Non Rebreathing Mask with Head Strap	50

Paediatric Non Rebreathing Mask

032-10-072SM	Small Adult Non Rebreathing Mask with Head Strap and Tubing	50
032-10-080	Paediatric Non Rebreathing Mask and Tubing	50
032-10-081	Paediatric Non Rebreathing Mask	50

Tracheostomy Masks & T-Pieces

Tracheostomy Mask & Humidifier

Tracheostomy masks are provided with a stud button non latex strap with a 360° swivel connector for maximum patient comfort. The 22mm Connector allows for connection to corrugated tubing and providing humidified oxygen when used with a venturi and humidifier adaptor.

ThermoTrach™ is a heat and Moisture Exchanger (HME) for spontaneous breathing patients, for use with a tracheostomy tube.
For further details on this product please see the Breathing Filters section.

032-10-091	Adult Tracheostomy Mask	50
032-10-092	Paediatric Tracheostomy Mask	50
038-41-250	ThermoTrach Heat and Moisture Exchanger	50

Gilston T-Piece

The Gilston T-Piece is designed to provide oxygen to patients with tracheostomy tubes. The sliding cover allows easy access for suction and a venturi can be fitted to one end of the tube to provide oxygen at the required concentration or combined with a humidity adaptor for humidification.

5060	Adult Gilston T-Piece	5
5061	Paediatric Gilston T-Piece	5

Post Operative

Post Operative Oxygen Therapy T-Pieces

Oxygen T-Pieces are used for delivering oxygen in the recovery room to patients with a laryngeal mask in situ.

The 40% T-Piece is clinically tested for oxygen concentration accuracy giving confidence in providing the precise level of oxygen prescribed. The T-Piece is crystal clear and available with a clear bag allowing for visual observation confirming breathing function. The 40% T-Piece complies to British Standard BS EN 13544-3 assuring compatibility with standard connectors.

032-10-540	40% Oxygen T-Piece with Corrugated Tube	50

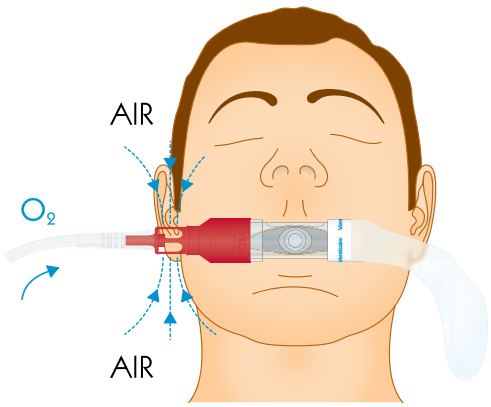
FCOT - The Complete Solution Post Op FCOT

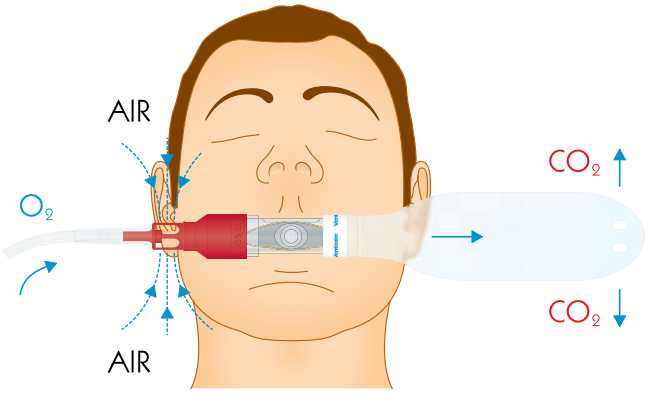
40% Fixed Oxygen Delivery

The 40% (red) venturi delivers the fixed concentration irrespective of oxygen flow rate and patient breathing pattern providing the recommended level of oxygen concentration helping in fast post operative wound healing therefore reducing the risk of infection.

No Rebreathing or Oxygen Dilution

The high flow of oxygen enriched air (40%) flushes the expired gases through the vents on the bag eliminating the risk of rebreathing. During inspiration the bag collapses preventing any dilution



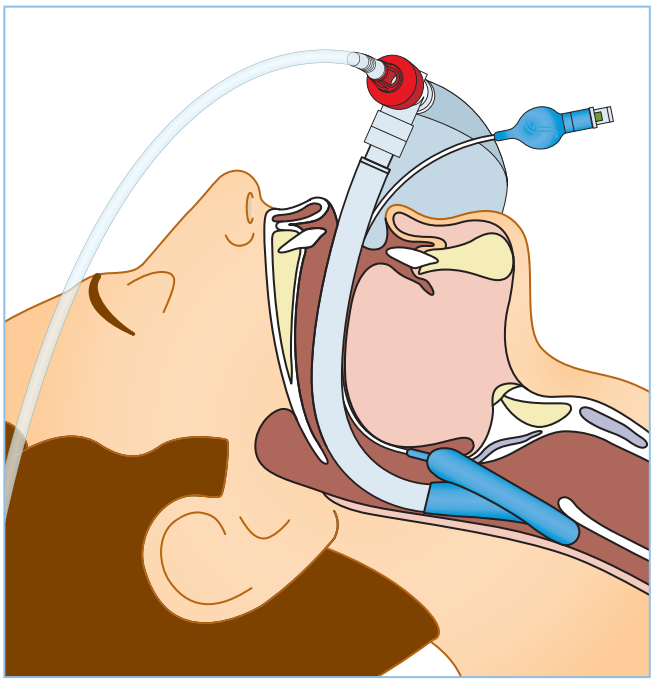


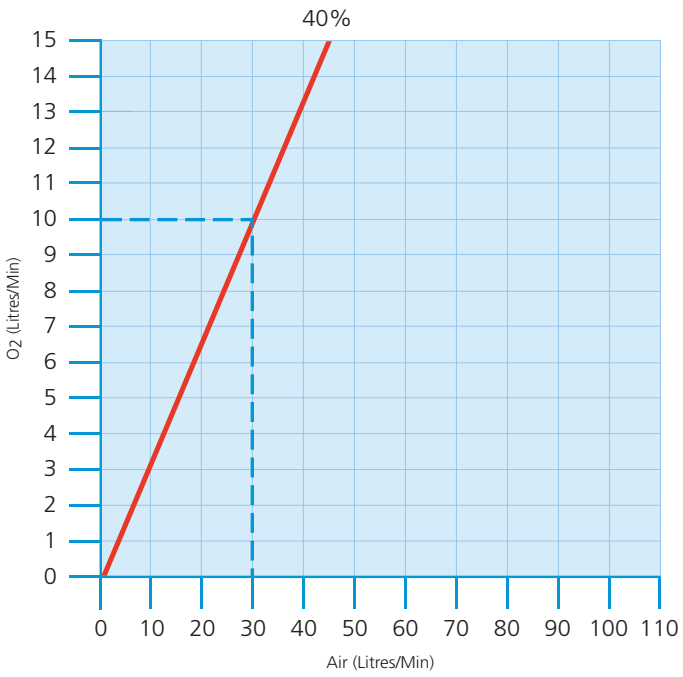
Visual Observation Of Spontaneous Breathing

The mist formation on the T-piece and bag inflation/deflation provides a visual observation.

Cost Effective

The complete kit of 40% T-piece bag , Mask and Star Lumen Tubing provides a cost effective solution.





Total Flow rate = 10 litres O_2 + 30 litres entrained air = 40lpm at 40% O_2

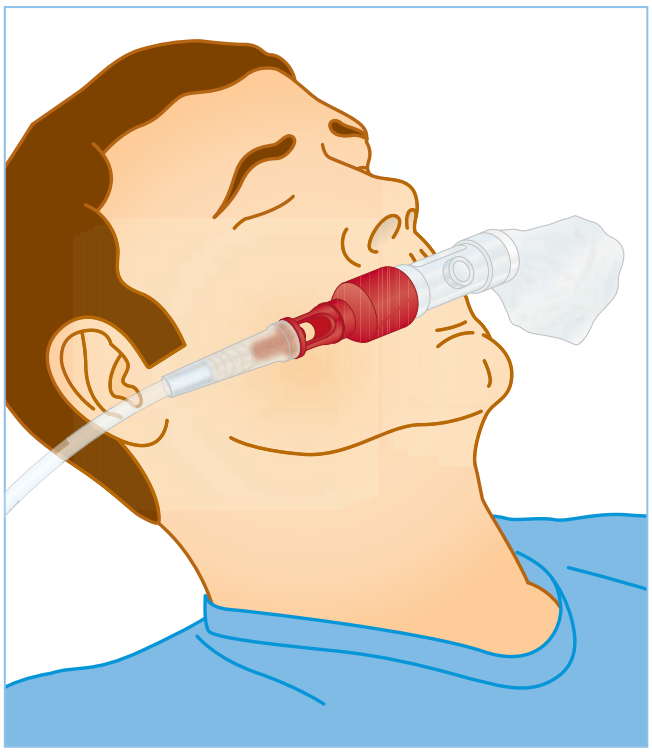
Post Operative

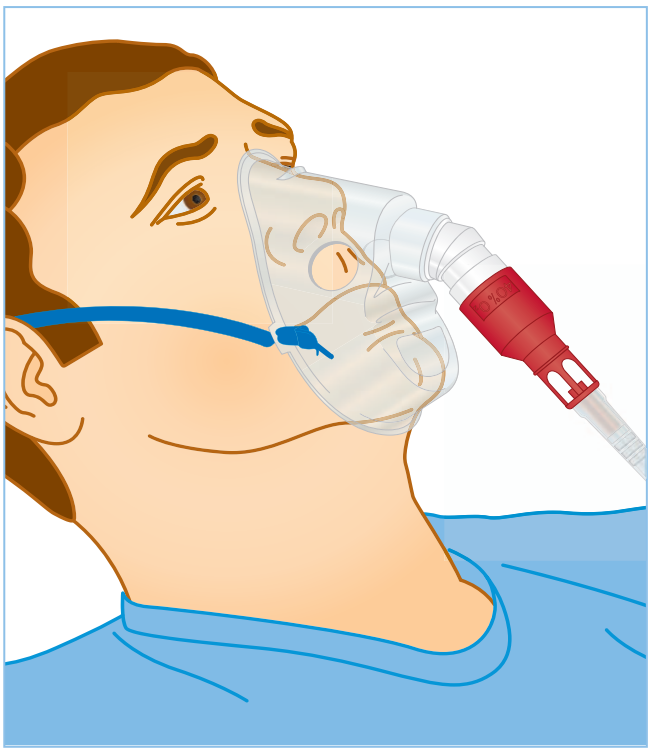
Recovery Room And Ward

Flexicare's FCOT™ is used with a Laryngeal mask in the recovery room. There after the mask included within the kit can be used for continuation of fixed concentration oxygen therapy.

Controlled oxygen delivery at 40% has been proven to shorten recovery time, enhance wound healing by reducing the risk of infection and reduced patient nausea when administered post operatively. 40% High Air Flow Oxygen Enrichment (HAFOE) fixed concentration oxygen establishes SaO_2 and provides a constant oxygen saturation.

Exposure to higher levels of oxygen above 60% for prolonged periods can cause hypoxemia and lead to acidosis due to hypoventilation which occurs in most patients just after general anaesthesia. Hypoxemia has been shown to be deleterious in terms of resistance to infection, wound healing and anastomotic integrity. 40% Oxygen is clinically proven to be the most effective in providing effective oxygen tension within haemoglobin.





FCOT provides a complete solution for post operative controlled oxygen therapy at 40% which can be used with all Laryngeal Masks, for spontaneous breathing adult and paediatric patients.

Oxygen is delivered to the patient at a predetermined 40% through the venturi barrel using a flow rate of 10 Lpm from the supply source and creating an overall flow rate at the patient end of 40 Lpm ensuring that there is no dilution of the prescribed concentration on inspiration.

During the inspiratory phase, the indicator bag deflates preventing dilution as well as providing clearly visible signs of breathing. Upon expiration the gases are flushed through the indicator bag quickly and filled again with 40% oxygen for the next breath.

FCOT is designed to continue with the patient after removal of the supraglottic airway and deliver fixed concentration via an oxygen mask during the remainder of the recovery period ensuring that the concentration is not changed. This is critical for patients who have undergone a major surgery where the recommendation is to continue post-op oxygen therapy for a further 3 days.

032-10-640	FCOT T-Piece with Indicator Bag	50
032-10-740	FCOT T-Piece with Indicator Bag, Aerosol Mask and 2.1m Oxygen Tubing	50
032-10-740A	FCOT KIT T-Piece with Indicator Bag, Aerosol Mask and 3m Oxygen Tubing	50
032-10-741	FCOT T-Piece with Indicator Bag, Paediatric Aerosol Mask and 2.1m Oxygen Tubing	50

MaxiNeb Nebuliser

MaxiNeb is a high output nebuliser which delivers medication quickly and efficiently. In comparing the performance of nebulisers for Dead Volume, Nebulising Time, MMAD and percentage of aerosol mass in the respirable range, MaxiNeb performed among the most efficient in each of these categories.

MaxiNeb®

Patient Choice

22mm connector allows MaxiNeb to be connected to either an aerosol mask or mouth piece providing users choice of delivery. A 17.5mm version is also available.

Easy Dilution

The chamber has clearly visible graduation marks to facilitate easy dilution of drugs as necessary.

Stable Stand Design

The wide legs of the MaxiNeb provides a stable upright position.

Anti-Spill Cap

The easy 1/4 turn closing design of the cap provides confidence in a secure seal whilst also incorporating a large 10ml reservoir to reduce the risk of spillage.

Clear Construction

Allows clinicians to view the nebulisation of the drug and provides visual assurance of the functioning device.

Specifications

- Low Dead Volume chamber (0.7ml), which reduces the wastage of drugs
- Nebulisation time as low as 3 minutes 16 seconds [5]
- Anti-Spill Design, prevents loss of drug in the event of knock over
- Highly efficient nebuliser capable of operating at angles up to 45°
- Quarter turn cap, easily operated by all ages in all settings
- Large chamber capable of holding up to 10ml of the selected drug
- Clear chamber with graduation markers to allow for quick and easy dilution

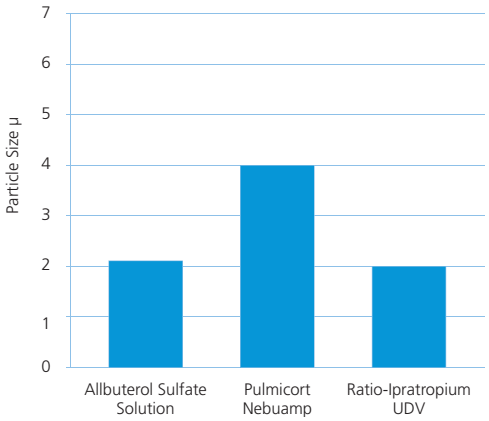
MaxiNeb complies with the provision prescribed in ISO 5356-1, and is suitable for use with all complying aerosol masks and T-piece designs.

MaxiNeb Nebuliser

032-10-003	MaxiNeb Nebuliser	50
032-10-004	MaxiNeb Nebuliser with T-Piece and Mouthpiece	50
032-10-005	MaxiNeb Nebuliser with T-Piece, Mouthpiece and Tubing	50
032-10-007	Adult Aerosol Mask, MaxiNeb and Tubing	50
032-10-007NC	Adult Aerosol Mask, Nose Clip, MaxiNeb and Tubing	50
032-10-011	Paediatric Aerosol Mask, MaxiNeb and Tubing	50

[1] Trudell Medical International, Canada. Aerosol Laboratory Report, July 2011.
[2] Albuterol Sulphate Inhalation Solution 2.5mg/3ml equivalent to 0.83mg/ml albuterol (Cobalt Laboratories Inc. FL.Pulmicort Nebuamp 0.5mg/ml budesonide suspension for inhalation (AstraZeneca Canada Inc.). Ratio-Ipratropium UDV, (250mcg/1ml)(Ratiopharm inc, Canada).
[3] Trudell Medical International, Canada. Aerosol Laboratory report July 2011. Actual particle range 0.98 to 5.39
[4] Surgical Materials testing laboratory, Bridgend, CF31 1RQ UK. May 2011.
[5] Surgical Materials testing laboratory, Bridgend, CF31 1RQ UK. May 2011. Result using fill volume of 2ml of 1% sodium fluoride. Flow rate set at 7 litres per minute.

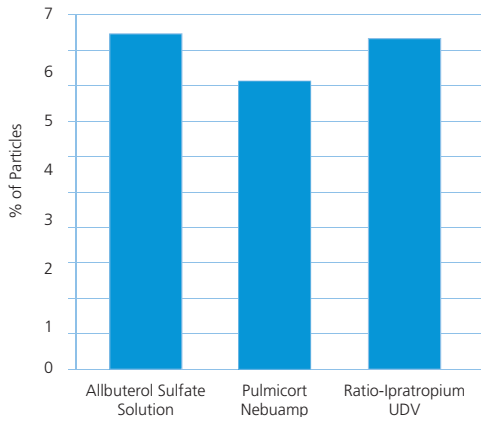
Mass Median Average Diameter (MMAD)



The chart shows an independent comparison of the MMAD of the MaxiNeb Nebuliser when tested with three different drugs.[1 2]

The MMAD of MaxiNeb can be seen to be consistently within the accepted respirable mass range of 1 to 5 µ (microns).

% Particles in Respirable Range



The chart shows the percentage of particles falling within the respirable mass range of 1 to 5 µ (microns).

MaxiNeb has the highest percentage of particles falling in the respirable range. MaxiNeb has been independently proven to produce a MMAD of 4.1µ with over 60% of aerosol particles being less than the maximum respirable particle size of 5µ.

MaxiNeb 90

MaxiNeb

MaxiNeb 90

Features all the same benefits as MaxiNeb but can be used when the patient is lying flat without inhibiting nebulisation.

MaxiNeb 90 Nebuliser

032-10-015	Maxineb 90 Nebuliser	50
032-10-016	Adult Aerosol Mask, Maxineb 90 Nebuliser and Tubing	50
032-10-017	Paediatric Aerosol Mask, Maxineb 90 Nebuliser and Tubing	50

MaxiNeb Accessories

032-10-064	22mm Mouthpiece	100
010-636	T-Piece	100
032-10-065	22mm Mouth Piece and T-Piece	100
032-10-120	In-line valve for use with MaxiNeb Nebuliser	100

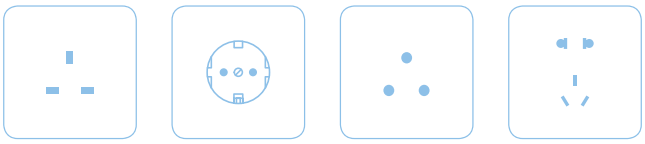
MaxiNeb and MaxiNeb Compact Compressors

The Maxineb Compressors have been developed to provide a complete system in both hospital and home for the delivery of different medications.

Specifications:

Electrical Requirements	220v 50Hz
Power Consumption	0.6A Under Normal Load
Compressor Power Range	35~45 psi
Flow Range	5~7 LPM
Particle Size	0.5µm to 5µm

Available for the following countries/formats:



MaxiNeb

Clear Instructions
In addition to the User Manual, the operational information is visible through the clear case construction for quick reference.

Quiet Operation
The modern design of the housing facilitates a low noise level output, minimising the ambient noise and reducing irritation to the user.

Changeable Air Filter
MaxiNeb has an interchangeable filter that is easily changed.

Integrated Compartment
The Maxineb compressor has a dedicated compartment to safely store the nebuliser and accessories, ensuring that all the necessary items are at hand when required.

MaxiNeb Compact

One Piece Uni Enclosure Sealed Design
No compartments or openings therefore reducing size.

Positive On and Off Switch
The rocker design of the switch allows patients with less dexterity to easily operate the compressor.

Portability
Integrated handle allows for easy transportation.

Replaceable Filter
Side located air filter can be changed as required.

Sleek Finish Casing
Easy to clean finish with minimal crevices to harbour bacteria.

Operational Benefits
The MaxiNeb Compressor is quiet when in use and produces 8 lpm, providing optimal output to the nebuliser to deliver the drug. Each MaxiNeb Compressor is supplied with all the essential items comprising of: MaxiNeb Compressor, MaxiNeb Nebuliser, Aerosol Mask, Mouthpiece, Star Lumen Tubing and Instructional Manual.

MaxiNeb Compressor

60022GB	MaxiNeb Compressor - British Plug (9R619001)	1
60022EU	MaxiNeb Compressor - European Plug (9R619002)	1
60022IN	MaxiNeb Compressor - Indian Plug	1
60022CH	MaxiNeb Compressor - Chinese/Australian Plug	1
60001	Replacement Filter for all Compressor Variations	5

MaxiNeb Compact

60122GB	MaxiNeb Compact Compressor - British Plug (9R619001)	1
60122EU	MaxiNeb Compact Compressor - European Plug (9R619002)	1
60122IN	MaxiNeb Compact Compressor - Indian Plug	1
60122CH	MaxiNeb Compact Compressor - Chinese/Australian Plug	1

Tubing, Connectors & Water Traps

There is a wide range of oxygen tubing, corrugated tubing, water traps, T-Pieces and accessories to provide maximum flexibility for clinicians to customise devices to meet the specific needs of patients.

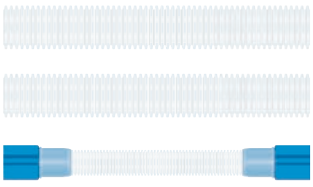
Star Lumen Tubing

032-10-060	Star Lumen Oxygen Tubing with connectors 2.1m	100
032-10-063	Star Lumen Oxygen Tubing with one narrow and one wide connector - 2.1m	100
032-10-059	Star Lumen Oxygen Tubing - 100m	1

Oxygen Bubble Tubing

032-10-069	Oxygen Bubble Tubing - 1.8m	100
032-10-067	Oxygen Bubble Tubing (3mm) 30m coil in dispensing box	1
032-10-068	Oxygen Bubble Tubing (3mm) 100m coil in dispensing box	1

Corrugated Tubing



038-01-226	22mm Corrugated Tubing with 45cm repeat, 50m coil in dispensing box	1
038-01-228	22mm Corrugated Tubing with 15cm repeat, 50m coil in dispensing box	1
038-01-230	22mm Corrugated Tubing 2m with two 22mm female connectors	50

Water Traps

010-650	Adult Self Sealing Water Trap	10
020-650	Paediatric Self Sealing Water Trap	10

Tubing Connections

032-10-117	Oxygen Tubing T Connector	25
032-10-118	Oxygen Tubing Right Angled Connector	25
032-10-119	Oxygen Tubing Straight Connector	25
032-10-110	Oxygen Tubing Swivel Connector	25
032-10-111	Oxygen Tubing Swivel Connector with Clip	25

Humidity Adaptor

Normally, enough moisture is present in ambient air entrained into a venturi barrel to provide sufficient humidification. Patients however, with thick mucous secretions in the airway, undergoing controlled oxygen therapy may require additional humidification.

To provide this a humidity adaptor has to be attached to the venturi barrel, with the open end away from the mask and connected to either a large volume nebuliser or humidifier. When oxygen is delivered at a flow rate of 1-4 l/min by mask, nasal cannula or nasal catheters, the oropharynx or nasopharynx provide adequate humidification. At a higher flow rate or when oxygen is delivered directly to the trachea, humidification is necessary.

Ultimately it might be necessary to increase the moisture content of the inspired gases in order to prevent the possible detrimental effect of dry gases on the airway structure. The humidity adaptor fixes over a venturi barrel as normal.

The adaptor has a 22mm arm which is connected to a humidifier via 22mm corrugated (elephant) tubing. Humidified air is transported from the bubble humidifier or heated humidifier to the humidity adaptor, then it is mixed with fixed concentration oxygen. This is the most accurate method of giving Fixed Concentration Humidified Oxygen to the patient.

5506	Humidity Adaptor 22mm	10

Bubble Humidifier

Oxygen is a dry gas, when it is delivered in excess of 4 l/min or when using a Nasal Cannula it is recommended that oxygen is humidified to prevent damaging the respiratory tract. Bubble humidifiers are used to provide humidified oxygen (cold humidification) to patients both in hospital and at home.

Safety Pressure Valve

The pressure valve automatically opens at 6psi / 4psi should the outlet line occlude.

PVC Nipple Diffuser

For home use the PVC nipple diffuser extends the life of the humidifier and eliminates the clogging of the diffuser apertures.

Recessed Connector with Screw Cap

Protecting the connector from accidental breakage.

Increased Humidification

The fine diffuser at the end of the inlet tube produces very small bubbles of gas, thus increasing contact surface providing maximum humidity picked up by the bubbles. At the same time the tiny bubbles produce very low noise unlike larger bubbles, helping the patient rest.

032-10-090	Bubble Humidifier with PVC Diffuser - 300ml, 6psi (recommended for home use)	20
032-10-089	Bubble Humidifier with Fine Diffuser - 400ml, 4psi (recommended for hospital)	20